

PIKES PEAK  
RADIO AMATEUR  
ASSOCIATION  
(PPRAA)



### Activities/Meetings

- The September HAM breakfast was at La Tartine,

The October 3rd HAM breakfast will be at Crazy Otto's Diner, 4423 Centennial Blvd

Join us between 8:00-9:30 AM

All are warmly invited

- PPRAA Board Meeting Tue, September 8th Daniel's Taco
- PPRAA general membership meeting, Wednesday, September 9th.
- 10 Meter/2 Meter net Every Thursday 7:00 pm 28.390 MHz—USB 144.200 MHz-USB

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Volume 65 Issue 09

September 2015

## PPRAA Scholarship recipient—Austin Schaller, WØBIW



and since then, has been actively participating in their educational activities.

Shortly after passing his Extra-class license, he went on to become an Elmer and taught kids the basics of electronic theory in preparation for obtaining their ham radio license.

Austin has been invited to present on a number of topics for the amateur radio community, including fractal antennas at the Radio Club of America Technical Symposium.

The recipient of the PPRAA \$1,000 scholarship is Austin Schaller from Boulder.

Austin Schaller is a student at LeTourneau University and is pursuing a bachelors in electrical engineering. At an early age, he acquired a fascination for electronics and amateur radio that was originally sparked by his grandfather, Frank de Vall, WØBIW, when the two of them spent time working on projects together. In 2009, he discovered a local amateur radio group for kids,

Now a sophomore, Austin is an intern at XetaWave, a company that designs and manufactures industrial and military radios. Over the course of the summer, he developed software libraries and automated tools to assist with field testing, diagnosed hardware problems in new products, and assisted with XetaWave's next-generation radio architecture.

Following his bachelor's degree, he intends to pursue a master's degree in radio engineering.

## PPRAA Scholarship Fund

Please remember this most worthwhile scholarship fund is totally based

on our donations. Please support the scholarship fund today. See:

<http://ppraa.org/donations>



## PPRAA Officers and Board of Directors

PPRAA Board of Directors consists of four elected officers, seven board members, as well the past president (time limit dependent). The Ø-Beat editor is a board appointed position and is also a member of the board.

Officers include:

- ⇒ President
- ⇒ Vice-President
- ⇒ Secretary
- ⇒ Treasurer

To send board member's email, browse to the officers section of our website: <http://ppraa.org/about-ppraa/officers>

President	Raleigh Holcomb	N4HYF
Vide-President	Jim Bishop	KDØKQL
Secretary	Diana Nordstrom	KCØNPP
Treasurer	Pam Scott	WØPRS
Past President	Michael Derbort	KCØELG
Board Member	Dan Martin	KDØSMP
Board Member	Glenn Brodt	N3ULW
Board Member	Jim Rader	KDØNQM
Board Member	Charlie Coyner	KD6CBC
Board Member	Jim Harris	WØEM
Board Member	Virgil Yost	NØXRS
Board Member	Frank Roger	KB3PDT
Ø-Beat Editor	Dan Scott	WØRO
Webmaster	Doug Nielsen	N7LEM

## Online Resources

### PPRAA Website

<http://ppraa.org>

The PPRAA website is the cornerstone for club related information, events, and technical information.

In addition you can register, pay dues, and submit donations. Donations to the PPRAA college scholarship fund are managed by FAR Scholarship Committee

### Facebook / Google+

Follow activities as they unfold, or get reminders of upcoming events.

Links to both Facebook and Google+ social media sites can be found on the PPRAA.org.

Or from each social media site search on: Pikes Peak Radio Amateur Association

### PPRAA Forums

The PPRAA forums are intended to allow users to exchange of ideas, ask and answer amateur radio related questions, and plan/discuss upcoming events.

This is a fantastic, but underutilized, tool. Check it out and register at:

[PPRAA.Forumotion.net](http://PPRAA.Forumotion.net)

## Monthly Activities

### Membership Meeting

Held the 2nd Wednesday of the month starting at 7:00.

IHOP  
5749 Stetson Hills Blvd  
(Just west of Powers Blvd)

NOTE: Many show up at 6 pm for kibitzing and grub.

### Board Meeting

Daniel's Taco  
2053 B St,  
Colorado Springs, CO 80906

6:30pm—8:00pm  
On the Monday preceding the membership meeting.

Board Meetings are open to all members.

### Ham Breakfast

Location changes monthly: Check [ppraa.org](http://ppraa.org) or table of contents, page I for the breakfast meeting location.

### 10 Meter/2 Meter Net

Every Thursday at 7pm  
Starts on 28.390 USB then transitions to 2 Meter SSB at 144.200 USB.



## Meeting Presentation Topics

### Last Meeting

John Bloodgood, KDØSFY  
presented an ARES topic.

### This Month's Meeting

Mike, WV7T  
"A little quality time"

### Next Meeting

Elections

## PPRAA club station—Tower fund

At the August PPRAA general membership meeting our illustrious club president, Raleigh, N4HYF brought to the floor information about the progress club station teams have done. The progress includes activity over the last few months where the trailer was worked on and put into a working state, wire and vertical antennas erected, and on-the-air operations.

The station is being used for club on-air events already. There are 4 operating positions, with 3 positions in the trailer and one in the fire station communications room.

Amenities inside the trailer include 110AC power, high-speed Internet, and a solar panel array that can power the 3 trailer operating locations indefinitely if needed.

The item of most interest is the raising the two towers as these would add a lot to the utility of the station.

Jim, WØEM, leading the antenna committee, put together a detailed antenna plan which includes parts and material required to install the towers. The committee researched the rules and regulation related to tower installation and made their recommendations and plans accordingly.

At the August club meeting it was suggested that we raise funds for some or all the costs related to the erection of the two towers.

Phebe, KIPCS, started the funding ball rolling by challenging the people attending the August meeting to open their wallets and donate to the tower fund. Phebe pointed out to

us what a great asset this is to the club, the station's ability to accommodate emergency communications, can be used for various ham activities, and can help those people that have antenna restrictions. The challenge was answered by the club members present and \$539 was collected within a few minutes.

Because this is such a worthwhile effort to the club, we continue to receive donations to the tower fund with checks being mailed to the club post office box and through the donation section of the [PPRAA's website](#).

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## Events

There are many amateur radio events happening in the area throughout the year. To find out about Ham-fests, conventions, classes, and more. Visit the [PPRAA home page](#)



## PPRAA Board Meeting Minutes—10 August 2015

Call To Order - 18:31

Approval of the July Meeting Minutes - Charlie motions, Jim B seconds, board approves

### Committee reports

**Treasurer's Report** - \$13,561, \$3,707 is available for spending.

**Antenna Committee** - Sent out a cost report for the first tower, still need to work on the rotor, add \$10 for rebar; Michael D. agreed to head the committee for getting parts for the tower.

**Club station** - solar array is up and working, switches are marked. Power has been run to the station. There is a rig inside ready to run.

**Asset committee** - on Aug 21 Virgil and Raleigh are going out to do inventory.

**Zero Beat** - Still need articles! Submit articles to [zerobeat@ppraa.org](mailto:zerobeat@ppraa.org) with [ZeroBeat] in the subject and/or cc [w0prs@me.com](mailto:w0prs@me.com) for guaranteed receipt

**ARES** - Cycling went well. Ascent & Marathon on 15&16, need lots of volunteers. Tour de Cure in Sept. Please go to the ARES

website to sign up.

**Picnic** - will be set up in the bays

**Next Meeting** - would have been on Labor Day, moved to the Tues the 8th.

**Elections** -In two months. Any interest, please say something.

### Around the Table

**Raleigh** - presented a certificate to Ed Corn for all his efforts on behalf of the club.

**Doug** - Hamcon 2016, contract has been signed. Working on meal plans. Have two speakers lined up. \$99/night for rooms.

**Mike A.** - volunteers to coordinate Field Day next year.

**Glenn** - T-shirts, collect money ahead of time. Maybe make this as a fundraiser for the tower fund.

**Next Board Meeting:** Sept 8th, Location: *Daniel's Taco Shop*

**Adjourn** - Doug motioned, Diana approved, 20:45

## PPRAA General Meeting Minutes—12 August 2015

2015-08-12 PPRAA Minutes by Jim Madsen / K3ILC

**Call to order** (2 minutes early):

6:58 PM.

**Approval of July meeting minutes:** Passed

**Next board meeting:**

Daniel's Taco Shop on the Tuesday

**Club station - tower discussion**

One tower \$4,404.96 if we bought everything new. Our cost remaining to put up a single Rohn 25G tower is \$1,478.75. Putting up both towers, and the final total is \$2,118.70.

Michael, KCØELG, will head a committee to raise funds. Dan Huber and Jim Rader volunteered for this committee.

Phebe, K1PCS, made an initial donation to the tower fund and challenged us to donate.

Many people accepted her challenge and donated.

The station has space, and wire antennas, for 4 stations with 3 in the trailer and 1 in the fire station's communication bay

**Presentation – Certificate of appreciation**

Raleigh, N4HYF, on behalf of PPRAA, presented Ed Corn, KCØTBE, of the Ellicott volunteer fire department a certificate of appreciation for his support both in terms of getting the fire department approvals, and station setup, wiring, etc.

**Club Event**

Barbecue is this Sunday (with tailgating), August 16th.

**Lighthouse Prime**

El Paso County commissioner, Peggy Littleton spoke about the Lighthouse Prime initiative. In September there will be a hypothetical no power event (exercise) and Lighthouse Prime is looking for households to participate. This created a discussion; many people provided input.

**QST first Field Day article**

Jim, KDØKQL brought the ARRL QST first Field Day article to our attention. The QST reprint of the 1933 article included the Pikes Peak Amateur Radio Association (the predecessor name to PPRAA). The article included how we operated on Pikes Peak. This places PPRAA at more than 82 years old.



**2016 ARRL Rocky Mountain Region**

Doug, N7LEM – ARRL Rocky Mountain Region convention will be May 13-16 2016 in Keystone

**ARES** John, KDØSFY (AREA EC):

*Bicycle Hill Climb was Sunday*

*Tour de Cure – 26<sup>th</sup> August – Need volunteers*

*Red Cross Exercise – 21 August*

*Exercise new digital capabilities in EOC – Sept*

*Inactive ARES members on the roster may be removed. Get active on some AREA activities*

**Elections**

Elections will be in 2 months (October)

**Tower Fund** by end of meeting: Raised \$532

**Presentation:**

1.) John, KDØSFY—ARES

2.) Kevin, KØBBA-Modification of aluminum and fiberglass for easier use

**10m Net** - 28.390 USB at 7pm on Thursdays.

**Next Meeting:** August 12th, Location: IHOP

**Adjourn** - Charlie moved, Jim Rader seconded and the motion passed: 08:49 PM

## Officers of the board of directors

When the October meeting rolls around, it will be bringing our annual election of the board of directors with it.

Criteria for running for a seat on the board are not overly stringent. You must be a full member of PPRAA. Therefore, if you paid the big bucks, you are eligible.

The board of directors does a lot of activities to they keep the club activities humming along. Board members also have a tendency to become active in

all the events including working on the club station, active in ARES, and attend the monthly general membership meetings.

If you would like to fill one of the 2-year positions please get in touch with the PPRAA secretary at [secretary@PPRAA.org](mailto:secretary@PPRAA.org).

The webmaster and ØBeat editor are the only appointed positions. If you would like to be involved with either of these, please inform the club secretary as well (especially ØBeat!).



## ISOTRON 10 Take advantage of the openings

Ralph, the president of Bilal Company has been a presenter at the PPRAA meetings.

### Use of an amplifier

*I have been publishing this technical article since January of 2013. For the past 35 years I have manufactured the Isotron Antennas. This also involved helping many with their very difficult installations. Some of the information will be from what we learned solve these problems. Some information will be right from a text book or credible article.*

*You are welcome to contact me at [wd0eja@isotronantennas.com](mailto:wd0eja@isotronantennas.com) with question you may have.*

Many amateur operators make use of a linear amplifier. This will increase your output power of your radio to as much as 1500 watts. Should you use one? What type, tube or transistorized?

It really comes down to a personal choice. However, possibly a few facts can help. There are several manufactures making Solid State amplifiers. What are some pros and cons?

Most Solid State amps use Power MOSFET transistors. This is the heart of the amp. What is this thing?

It is an interesting device. It has a minimum of 3 connections. Source (S), Drain (D) and Gate (G).

The Source is normally the ground side of the device. The Drain is normally the + voltage side. Current will travel from the S to the D when biased or triggered properly. It will also turn off the current flow if needed. This is all controlled by the Gate. Current values of as

much as 50 amps for a basic MOSFET can be controlled by the Gate.

The Gate is unique in that it has no physical connection to the D and S material. It is insulated by a thin dielectric. Therefore the input resistance is almost infinite or very high.

On an N type transistor, you can trigger it fully on by just touching 4 or 5 volts + to the G. Take the voltage away and the transistor will stay on for along time. Ground out the G, the device will turn off.

The resistance from the S to D when fully on is only a fraction of an ohm. At RF frequencies this device is at a very low impedance and needs to be matched, usually with ferrite type transformers. This makes the amplifier very broad banded and does not need tuning over the entire HF spectrum. Most amps will have a band selector only, for switching bands.

Even though the manufactures of Solid State amps have a SWR protecting circuit, the MOSFETS are not damaged by a high SWR. What damages the MOSFETS is excessive heat. Good heat dissipation is essential to the life of the device.

The amplifiers are reasonably efficient, run at low voltages and have no warm up time. In theory there is nothing to wear out or deteriorate. They are light weight and smaller than the tube competitors.

On the down side. A transistor just does not get weaker in time like a tube. If the transistor fails, it is out. The cost can be quite high for a device. If installed without knowing the cause, it can blow the replacement very quickly.

Most solid state amps will require a high wattage Tuner.

Next article we will see how a tube amplifier will fair.

73,  
Ralph WDØEJA

September 2015

*Pease forward this article to those you feel would be interested.*

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Florissant, CO 80816*

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[wd0eja@isotronantennas.com](mailto:wd0eja@isotronantennas.com)



## Antenna analyzers you can hack

By Dan Romanchik, KB6NU

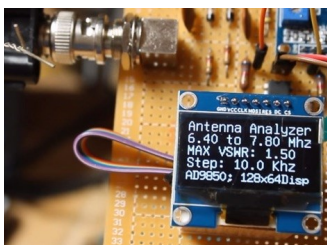
I'm a nut for antenna analyzers. I think that they are one of the most useful things a ham can own

I've often wondered why there aren't more DIY antenna analyzer projects, though. Perhaps it's because designing measurement circuits isn't easy. An antenna analyzer has to have a signal source as well. Even so, an antenna analyzer doesn't need a whole lot of accuracy to be useful, so you would think that more builders/hackers would tackle a project like this.

I do know of one antenna analyzer kit on the market. The VK5JST Antenna Analyser Kit (<http://www.ahars.com.au/about/kits/>) costs about \$110 USD. I actually purchased this kit a year or so ago, and it looks like a great unit. The unit seems well-designed, and it comes with a plastic case, unlike many projects these days, but I haven't yet gotten around to building it

I've also recently found out about an Arduino-based antenna analyzer project (<http://hackaday.com/2015/08/06/40-antenna-analyzer-with-arduino-and-ad9850/>). It uses an

AD9850 module as the signal source. The approximate cost for all the parts is about \$40, and you can experiment with the code, if you like. If you have the time and inclination, this project might be worth taking a hack at.



Another antenna analyzer project from Australia is the VK3YY antenna analyzer (or "analyser" as they spell it there). It uses an Arduino Nano. The interesting thing about the blog post in which VK3YY describes the project (<https://vk3yy.wordpress.com/2014/09/29/antenna-analyser-project/>) is that you can follow his design and experimentation process.

Yet another analyzer

While I'm talking about antenna analyzers, let me mention another one that I've just found out about: the IW2NDH Antenna Analyzer (<http://www.iw2ndh.com/>).

This antenna analyzer isn't a kit, but at \$175 seems to be a good deal. This unit has a frequency coverage of 2 – 160 MHz, and can be used as an antenna analyzer, signal generator, and a scalar network analyzer.

Apparently, this started out as an Arduino project. As Massimo, EA1DDO, pointed out on the radioartisan Yahoo Group, there is source code for this project on GitHub (<https://gist.github.com/jackdev23/7876502>), and a schematic is available on the Union de Radioaficionados Espanoles (URE) website (<http://www.ure.es/media/kunena/attachments/2420/Schematic.jpg>).

Let me know what you think.

E-mail me at:

[cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).

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*When he's not agonizing over what radio to buy, Dan operates CW on 30m and blogs about amateur radio at: [www.kb6nu.com](http://www.kb6nu.com)*

*He's the author of the "No Nonsense" amateur radio license study guides and the CW Geek's Guide to Having Fun with Morse Code.*

## ØBeat and you

When submitting articles, pictures, or comments to the ØBeat editor, please include square brackets with the word ØBeat between (example: [ØBeat]).

This allow me to more quickly recognize items I need to pay more attention to.

The email address is easily found on the PPRAA website officers list by clicking on the ØBeat editor's name [here](http://ppraa.org/about-ppraa/officers): <http://ppraa.org/about-ppraa/officers>



## VE Testing & Education—Colorado Springs (PPRAA)

Pikes Peak Radio Amateur Association (PPRAA)

When:  
Feb, Apr, Jun, Aug, Oct, Dec  
2nd Saturday at 9 AM

Location:  
Colorado Technical University (CTU)  
4435 North Chestnut  
Colorado Springs, CO 80907

Directions available at:  
[ppraa.org/ve-testing](http://ppraa.org/ve-testing)  
or contact:  
Dan Martin  
VE@PPRAA.org



Mike Anderson, WV7T does personal and small group training for all license classes.

Mike also does Morse code training.

Mike can be reached at:  
719-229-8610  
[vv7t@aol.com](mailto:vv7t@aol.com)

## VE Testing Woodland Park (MARC)

MOUNTAIN AMATEUR RADIO CLUB (MARC)

When:  
Jan, Mar, May, Jul, Sep, Nov  
1st Saturday at 10 AM

Location:  
Woodland Park  
Woodland Park Library-  
Community Meeting RM  
218 East Midland Avenue

Directions:  
<http://www.nx0g.org/ve.html>  
or contact  
Wes Wilson (KØHBZ)  
[k0hbx@arrrl.net](mailto:k0hbx@arrrl.net)  
Call (719) 687-8758



## Applicants will need the following items:

1. A valid PHOTO ID, driver's license preferred (if you do not have a valid photo ID, please call for alternative identification requirements).
2. Your FRN or SOCIAL SECURITY NUMBER (now required – this includes children).
3. Your CURRENT ORIGINAL amateur radio license (if any) and a PHOTOCOPY for the VE Team to keep.
4. The CURRENT ORIGINAL CSCEs you have and a PHOTOCOPY for the VE Team to keep.
5. Cash, Check or Money Order for \$15 (standard ARRL VE Fee). Checks and money orders should be made out to ARRL. This covers all exams you wish to take at this VE session.

Teams, is to not allow same day retests on failed exams.

### PPRAA – Colorado Springs testing only:

Anyone passing their Technician Class examination at a PPRAA test session will receive a free year's membership to the Pikes Peak Radio Amateur Association

NOTE: PPRAA and MARC VE Team policy, as with many VE



## Pikes Peak ARES—An introduction

Amateur Radio Emergency Service (ARES) formerly known as Amateur Radio Emergency Communications (AREC), was founded in 1935 by the American Radio Relay League (ARRL) and continues to be its emergency communications arm.

Formally, ARES provides an answer to the Federal Communications Commission (FCC) mandate in Part 97 "to enhance the value of the amateur services as a voluntary non-commercial communications service, particularly with respect to providing emergency communications". As such, your participation in ARES helps ensure the continued existence of amateur radio in the USA.

Informally, PPARES provides opportunities to create and build relationships with like-minded people that can last a life time (find your 'tribe'). To

accomplish our mission, each member has to be a licensed Ham operator, technically proficient on their equipment, been trained in emergency response procedures and practices, and maintain their proficiency in the field by participating in multiple public service events and served agency exercises each year. AND, have fun doing it!

The job #1 job of ARES is communicating – to get the message through for our served agencies using the fastest and most accurate means available consistent with the urgency of the message. For our served agencies we provide reliable radio networks with message logging & tracking support, and professionals specially trained in emergency preparedness (NIMS) & the use of their equipment.

Listen and talk on the Pikes Peak District Amateur Radio Emergency Service net. This net meets weekly on Tuesday evening 7pm local time on the 146.970 (-) (100 Hz) Pikes Peak FM Association repeater. All amateur radio operators interested in learning about PPARES are invited.

Visit and explore the PPARES website (<http://www.ppares.net>); it has three parts. The first is the main site itself; next is a Membership Database, and the third component is Event Signup. Each of these sections requires a separate username and password. When registering with each section, please use your call-sign as your user-name.

Check it out!

## PPRAA Scholarship Fund

The PPRAA scholarship was established with the vision that it would help a deserving young ham or hard sciences student.

However, that vision can only be recognized if the scholarship continues to be funded year after year. To keep the scholarship fund active Individual hams, clubs, and organizations, are kindly asked to consider supporting this worthwhile fund. The scholarship's future, the great cause it represents lives through the tax-

deductible contribution you make. Please dig into your pockets for just a few dollars or a lot..

Contributions may be made via the PPRAA website (<http://ppraa.org>) as part of the membership renewal, or at club meetings and event.

The scholarship fund can be reached at:

FAR Scholarship Committee  
P.O. Box 911  
Columbia, MD 21044

You may send checks directly the FAR Scholarship Committee, or to the PPRAA post office box, Remember to make checks payable to: "PPRAA Scholarship Fund"

Donations may be made through the online PPRAA donation portal which can be found at:  
<http://ppraa.org/donations>

**PIKES PEAK RADIO  
AMATEUR  
ASSOCIATION**

Send membership application to:

Pikes Peak Radio Amateur  
Association, Inc.  
P.O. Box 16521  
Colorado Springs, CO 80935

**General Questions:**  
ppraa@ppraa.org

**ØBeat:**  
zerobeat@ppraa.org



**ppraa.org**

**Get Radio Active, get on the air!**

## Membership Application:

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ New Membership: Yes / No

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Call: \_\_\_\_\_ Class: \_\_\_\_ Phone # (\_\_\_\_) \_\_\_\_\_

Email: \_\_\_\_\_

Are you a ARRL member: Yes / No

Additional Family Members:

Name1: \_\_\_\_\_ Call: \_\_\_\_\_ Class: \_\_\_\_ ARRL Member: Yes / No

Name2: \_\_\_\_\_ Call: \_\_\_\_\_ Class: \_\_\_\_ ARRL Member: Yes / No

Name3: \_\_\_\_\_ Call: \_\_\_\_\_ Class: \_\_\_\_ ARRL Member: Yes / No

\_\_\_\_ \$15.00 Full Member

\_\_\_\_ \$10.00 Full Member over 65

\_\_\_\_ \$18.00 Family Membership

\_\_\_\_ \$12.00 Family Membership over 65

\$\_\_\_\_ Membership Amount

\$\_\_\_\_ Scholarship Fund Donation

\$\_\_\_\_ PPRAA General Fund Donation

\$\_\_\_\_ Total

## 2015 Scholarship Fund

This last year the donations to PPRAA Scholarship Fund have been slipping.

The scholarship is for a hard science or math related field of study. Those fields of study are, or are similar to, Physics, Chemistry, Math, Electrical Engineering, Bio Engineering, ..etc.

There are many ways to make your tax deductible donation to this fund. Contributions may be made via:

⇒ [PPRAA website \(http://ppraa.org\)](http://ppraa.org)

⇒ Part of your membership renewal,

⇒ Club meetings and event.

⇒ Directly to the fund at:  
FAR Scholarship Committee  
P.O. Box 911  
Columbia, MD 21044

**Make checks to:  
PPRAA Scholarship**

## Ø- Beat Banner

Photo by Dan—WØRO.

This photograph was taken August 29th 2015.

The theme of the banner is Pikes Peak Region. If you would like to submit pictures for the Ø-Beat banner, please send them to: [zerobeat@ppraa.org](mailto:zerobeat@ppraa.org)

Please Include "[Ø-beat]" as part of the subject line.